



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,332	07/14/2006	Hideaki Yaguchi	128755	1835
25944	7590	01/09/2009	EXAMINER	
OLIFF & BERRIDGE, PLC P.O. BOX 320850 ALEXANDRIA, VA 22320-4850			RO, BENTSU	
ART UNIT	PAPER NUMBER			
		2837		
MAIL DATE	DELIVERY MODE			
01/09/2009	PAPER			

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,332	<b>Applicant(s)</b> YAGUCHI, HIDEAKI
	<b>Examiner</b> BENTSU RO	<b>Art Unit</b> 2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 20 October 2008.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 3-16 and 18-25 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 3,4,8-10,13,14,18,22 and 25 is/are rejected.

7) Claim(s) 5-7,11,12,15,16,19-21,23 and 24 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_

**SECOND OFFICE ACTION ----- A FINAL REJECTION**

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3, 4, 8-10, 13, 14, 18, 22, 25 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nakamura et al US Pub No. 2004/0145338.

In the first office action, the examiner used Fig. 19 of Nakamura prior art teaching to reject the claims. The examiner did not go through the complete teaching of Nakamura et al because the claims are broad enough to read onto the prior art Fig. 19, and also because other embodiments are more intricate.

In response to the rejection, applicant has canceled some claims and amended the others. After reviewing the Nakamura's complete teaching, the examiner has concluded that the amendment is still not overcome Nakamura's teaching, for example, Figs. 1-4 of the first embodiment. The following chart explains the rejection.

The amended claims:	Nakamura first embodiment teaching:
3. (Currently Amended) A motor drive apparatus comprising:  a first drive circuit driving a first motor;  a voltage converter performing a voltage conversion between a power supply and said first drive circuit; and  a capacitor provided between said voltage converter and said first drive circuit, wherein  said voltage converter performs a voltage step-up operation of stepping up a power supply voltage to an arbitrary level and outputs the stepped-up voltage, and  said first drive circuit starts an electric power conversion for driving said first motor in powering mode after said voltage step-up operation is completed.	Fig. 1 shows a motor drive apparatus 100;  Fig. 1 shows an inverter 14 which is a first drive circuit for driving a first motor M1;  Fig. 1 shows a dc/dc converter 12 for performing a voltage conversion between a dc power source B and the inverter 14;  Fig. 1 shows a capacitor 13, the capacitor 13 is provided between the converter 12 and the inverter 14;  the dc/dc converter is a step-up converter, see paragraph [0075], which states in part that " <i>DC/DC converter 12 increases DC voltage Vb.....</i> ";  the DC voltage is step-up from Vb to Vm, wherein the Vm is an output voltage of the converter 12;  the voltage Vm is an arbitrary level voltage;  the inverter 14 starts conducting to drive the motor M1 only after the capacitor 13 is fully charged, see the <u>Examiner's explanation #1</u> : below.
4. (Previously Presented) The motor drive apparatus according to claim 3,	same as explained previously, namely, the charging of capacitor 13 must be

wherein said first drive circuit receives, after said voltage step-up operation is completed, a required power of said first motor and starts to drive said first motor in powering mode.	completed before the starting of inverter 14.
8. (Currently Amended) The motor drive apparatus according to any of claim 3, wherein  said first motor is a motor starting or stopping an internal combustion engine, and  said voltage converter starts said voltage step-up operation when an instruction to start said internal combustion engine is output.	the motor M1 can be an engine starter, see paragraph [0068];  the control apparatus 30 and/or the ECU (not shown) provide the control instruction.

**Examiner's explanation #1:**

The motor M1 is started only after the charging of capacitor 13 is completed because of the following reasons:

- Paragraph [0077] states that [0077] Capacitor 13 smoothes DC voltage from DC/DC converter 12, and supplies the smoothed DC voltage to inverter 14. The word "smoothed DC voltage" implies that the charge is complete or otherwise the DC voltage would be a ripple voltage and not a smoothed voltage.
- In other paragraphs, such as [0085], [0094], [0097], [0119], [0128], [0129], [0139], [0141], Nakamura repeatedly states that "power is supplied from capacitor 13 to the inverter 14." If capacitor 13 is in a charging mode, the

capacitor 13 is receiving current from the converter 12. If the capacitor 13 receives current from the converter 12, then the capacitor 13 simply cannot provide current or power to the inverter 14.

- Fig. 1 shows a control apparatus 30 which controls the conduction of inverter 14. The control circuit 30 receives the full charged signal  $V_m$  from the output voltage sensor 20. The inverter 14 can be started only if the charge is complete.
- Under paragraph [0097], there is an equation (1). The equation (1) shows the energy stored in the capacitor  $(1/2).C.V_m^2$ , wherein the  $V_m$  is a fully charged voltage.
- Fig. 19 does not show a control circuit, thus, the examiner has to assume that the power is simultaneously supply to the capacitor 322 and the inverter 330. However, in the real world, it is not.

Regarding claims 9 and 10, albeit not clearly shown, the target voltage determination means, the voltage conversion control means and the maximum voltage are all inside the control apparatus 30.

Regarding claims 13, 14 and 25, Nakamura Fig. 10 shows a second motor M2 connected in parallel to the first motor M1.

Claims 18 and 22 are claiming a regenerative mode. Nakamura clearly teaches regenerative mode, see paragraph [0078] for example. The examiner has noted that

claim 22 is NOT the original claim 22 in independent form, therefore, the previously indicated allowability of claim 22 is not applicable.

4. Alternatively, claims 3, 4, 8-10, 13, 14, 18, 22, 25 are rejected under 35 U.S.C. 103(a) as obvious over Nakamura et al US Pub No. 2004/0145338 in view of Ochiai US Patent No. 5,994,789 (this is a new reference).

Nakamura clearly teaches the completion of charge in capacitor 13 before the start of inverter 14 as explained previously. However, to further confirm such a teaching, the examiner hereby cited a second reference (Ochiai) to support the examiner's notion.

Ochiai Fig. 2 teaches a smoothing capacitor 17 which is similar to the capacitor 13 of Nakamura. The capacitor 17 must be fully charged before the inverter 6 can be started, see column 3, lines 63-64.

5. Claims 5-7, 11, 12, 15, 16, 19-21, 23 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. Applicant's arguments with respect to claims 3 and 18 have been considered but are moot in view of the new ground(s) of rejection.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication should be directed to BENTSU RO at telephone number (571)272-2072.

/BENTSU RO/  
Primary Examiner, Art Unit 2837